

Claims

1. (presently amended) An apparatus for the liquid chromatographic separation of substances under pressure, ~~for which at least comprising~~

a plurality of ~~several~~ liquid chromatographic separating lines (17), which are disposed in parallel, are supplied by

a single pumping unit in the form of one or two pumps (3, 4) for supplying a liquid to the separating lines and, in the region, when the samples are supplied, are combined with a

a sample holding system for holding a plurality of samples and allowing simultaneous parallel withdrawal of the samples, (5) and

an injection system (10) for parallel transport of the samples from the sample holding system and a liquid from corresponding separating lines to corresponding parallel separating columns as well as, in the detection region, with a detector (13)

, connected with an evaluation and control unit (16),

wherein the liquid chromatographic each of the separation lines (17) have has a separate flow control unit (10, 12, 12.1, 19), the flow regulating units (10, 12, 19) consisting of comprising a flow controller (10.1 - 10.8), a total pressure meter (19) and a flow meters (12.1 - 12.8), wherein the flow controller is disposed upstream of the injection system,

a detector means connected to an evaluation and control unit for determining retention time for each of the

separating columns based on data from the corresponding flow meter and total pressure meter, and

means for independently adjusting flow via the corresponding flow controller in each of the separation lines based on the detected retention time, such that an actual retention time in all of the separating columns may be rendered the same.

2. (presently amended) The apparatus of claim 1, wherein the flow regulating units ~~(10, 12, 19)~~ in each of the separating lines ~~(17)~~ can be controlled by software and/or hardware.

3. (canceled)

4. (canceled)

5. (canceled)

6. (presently amended) The apparatus of claim 1, wherein the total pressure meter ~~(19)~~ is disposed on the output side of the pump ~~(3, 4)~~.

7. (presently amended) The apparatus of claim 1, wherein the sample holding system ~~(5)~~ is connected with at least several parallel sample holding lines over at least several corresponding injection ports ~~(6)~~ and

wherein the injection system comprises injection valves ~~(9)~~ and sample loops ~~(7)~~ of the multi-parallel injection system ~~(18)~~ which are connected with at least several ~~corresponding~~ separating columns ~~(11.1 to 11.8)~~, which are the separating columns being coupled with a the

retention time detector, (13), which the retention time detector comprising a plurality of has several determination channels.

8. (presently amended) The apparatus of claim 1, wherein the separating columns ~~(11.1 to 11.8)~~ are combined compactly into a battery of separating columns ~~(11)~~.

9. (presently amended) The apparatus of claim 1, wherein each injection valve ~~(9)~~ is disposed ~~before the upstream of the corresponding~~ separating columns ~~(11.1 to 11.8)~~.

10. (presently amended) The apparatus of claim 1, wherein each injection valve ~~(9)~~ is constructed as a multiple way valve.

11. (presently amended) The apparatus of claim 1, wherein each injection valve ~~(9.1 to 9.8)~~ has switching ~~possibilities~~ means capable of directing flow to an injection port ~~(6)~~, ~~to a sample loop (7)~~, ~~to the pumps (3, 4)~~, ~~to a waste collector (8)~~ and to or one of the separating columns (11.1 to 11.8).

12. (presently amended) The apparatus of claim 1, wherein each of the separating lines (17.1 to 17.10) have has a corresponding separating column and and a corresponding solid phase extraction unit (13), which are extraction unit is coupled with further a second set of one or two pumps (21, 22).

13. (presently amended) The apparatus of claim 12, wherein a multiple way valve, which can be connected with the solid phase extraction unit ~~(23)~~, ~~the a~~ multi-parallel fraction output unit ~~(24)~~ and ~~the or a~~ waste collector ~~(14)~~, is disposed in ~~the an~~ end region of the solid phase extraction unit ~~(23)~~.

14. (presently amended) The apparatus of claim 12, wherein ~~the each~~ solid phase extraction units ~~(23)~~ havehas at least two fractionating columns ~~each~~.

15. (presently amended) The apparatus of claim 12, wherein each of the solid phase extraction units ~~(23)~~ havehas between 10 and 50 fractionating columns.

16. (presently amended) A method for the liquid chromatographic separation of substances under pressure, comprising the steps of, in order:

~~for which several samples, which are to be separated, are supplied~~ simultaneously a plurality of samples to at least several plurality of corresponding separating columns by way of a plurality of corresponding separating lines (11) and, subsequently,

taking a calibration sample, a detection and selection takes place simultaneously and in parallel, from each of the separating lines, and determining wherein thea retention time for each of the separating columns,

separating lines (17) are calibrated each of the separating lines based on the respective determined retention time and adjusting flow in each separating line with respect to the retention times by means of a calibration sample and, after the individual retention

~~times have been determined, are adjusted to the same~~
~~retention time by control with~~ by way of a flow
~~regulator~~ controller (10) ~~on the basis of data from a flow~~
~~meters (12) and an initial pressure meters (19), wherein~~
the ratio of the total pressure to the volume flow to the
respective separating line is used as actual value for
indirectly controlling the volume flow, wherein the flow
controller is disposed upstream of the separating columns.

17. (canceled)